J Med Sci J Med Sci 2014;34(5):211-213
DOI: 10.4103/1011-4564.143648

SHORT COMMUNICATION

Assessment of Nutritional Status in the Community and Clinical Settings

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The nutritional status of an individual is usually a result of multiple factors that interact with each other at different levels. Recognizing the role of diet at the onset of many diseases and assessing the nutritional status of an individual, family and community are important for public health. The nutritional assessment is done to obtain information about the prevalence and geographic distribution of nutritional disorders within a community or a specified population group. It can also be used to identify high-risk groups and to assess the role of different epidemiological factors in nutritional deficiency. Assessment of the nutritional status aids assessing the prevalence of nutritional disorders, planning corrective measures, and evaluating the effectiveness of the implemented strategies simultaneously.

Key words: Diet, diet survey, nutritional assessment

INTRODUCTION

The nutritional status of an individual is usually a result of multiple factors that interact with each other at different levels.[1] The consumption of adequate amount of food both in terms of quantity and quality is one of the key determinants, which has a significant impact on the nutritional status.[1] Furthermore, the eating pattern of an individual is a crucial factor that dictates the occurrence of a disease, especially some chronic conditions such as coronary heart disease, hypertension, stroke, diabetes mellitus, and cancer.[2,3] In addition, adverse outcomes such as low birth weight, malnutrition, disability, poor quality of life, and mortality are also related to poor eating pattern,[4,5] in both developed and developing countries. Recognizing the role of diet at onset of many diseases, and assessing nutritional status of an individual, family and community are important for public health.[2,3]

NUTRITIONAL ASSESSMENT — AIM AND RATIONALE

The nutritional assessment is done to obtain information about the prevalence and geographic distribution of nutritional disorders within a community or a specified population group. It can also be used to identify high-risk groups and to assess the role of different epidemiological factors in nutritional deficiencies. Such nutritional assessment has a significant role in policy-making and nutritional recommendations, deciding fund allocations desired in the surveyed area to program managers, and evaluating the effectiveness of implemented corrective measures. Realizing the scarcity of resources, especially in developing nations, the goal is not to examine the entire population in the community, but limit the survey to a representative group so that the results can be generalized to the entire community.[2,6,7]

Received: April 1, 2014; Revised: June 10, 2014; Accepted: August 7, 2014
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METHODS FOR NUTRITIONAL ASSESSMENT

The assessment of the nutritional status involves two methods: Direct (- deals with individuals and measures the objective criteria) and indirect (- uses community health indices reflecting nutritional influences).[6,7] These methods include anthropometric, biochemical, clinical, dietary, emotional, and functional measurements to cover all the phases of the disease. Since, each of them has some advantages and limitations, utilizing all of them to assess the nutritional status gives an overall picture of an individual's nutritional status.[6] However, the use of any one method or a combination of methods is recommended depending on the purpose of the nutritional assessment.

Clinical appraisal

It is an essential feature of all nutritional surveys as the primary goal is to assess the health status of individuals or groups within a population in accordance with the type

of food consumed. The presence of two or more clinical signs of a specific nutritional deficiency increases the diagnostic significance.[1] It can be applied to a large group of the population. However, its limitation is that it cannot quantify the exact level of nutrient deficiency because most of these clinical signs for nutrient deficiency are nonspecific and require biochemical analysis to identify the nutritional status.[6,8]

Anthropometric measurements

Anthropometric measurements include height, weight, skin-fold thickness, and circumference etc., could detect the change of body composition to assess the nutritional status in specific population groups, including newborn, children under age of five and adults. The advantage of using anthropometric measurements is that routine anthropometric measurements can suggest patterns of growth and development of an individual.[7]

Laboratory and biochemical investigations

These investigations are extremely helpful in detecting early changes in body metabolism and nutrition before the appearance of overt clinical signs. In addition, the results obtained are precise, accurate and reproducible. The limitations are that these investigations are time-consuming and expensive, which cannot be used on a large scale.[8,9]

Functional indicators

These indicators for nutritional status are emerging as an important category of diagnostic tools and supporting the biochemical investigations. Some of the commonly used functional indices are for hemostasis and nerve conduction.[1,7,9] Although these indicators are been used in different physiological components, they are time-consuming and expensive.

Vital statistics

Vital statistics is obtained from the community, health care professionals, and surveillance network etc. All the data collected from different countries will present an overall picture of the nutritional status for that population of interest to help the government-making policy decisions.[2,8] For example, analysis of morbidity and mortality data can be used in estimating the prevalence of the disease in the community and identifying the high-risk groups. However, in contrast to the mortality data which do not provide a satisfactory picture of the nutritional status of the population, morbidity data has higher public health importance and can help policy makers in giving priority to a particular area.[6,7] The program managers could use vital statistic to evaluate the strategies periodically, then revise their program, accordingly.[7]

Dietary intake assessment

Dietary survey is a scientific assessment of eating pattern that could detect nutrient deficiency. There are many methods to do dietary surveys. The food balance sheet could aid the program managers to decide the dietary needs of a region or a state or a country — it is obtained by subtracting the amount of food provided for a specified group of population on a specific date and the amount remaining after a previously set time limit, to finally establish the consumption/requirement of food commodities for the earmarked population in that specified arbitrary period. The inventory method is based on a similar rationale as food balanced sheet except the study population is usually a group of a homogenous population, that is, hostel. The weighed food records method is employed at household level to estimate the food requirement — by weighing either raw food or cooked food for 7-10 days for a particular family in a specified period. The 24 h recall method is employed at household level to assess the type of food and the quantities consumed in the last 24 h. The food frequency questionnaire method helps in assessing meal patterns and dietary habits of people by identifying number of times a specific food item is consumed in a defined time-span.[10,11-13] However, most of these methods are tedious, difficult to execute, and have a poor acceptance rate by members of the community. To summarize, food balance sheet method and inventory method are similar, and the only difference is the settings (food balance sheet — state/national level or inventory — institutional level) in which they are generally considered applicable. However, the other three methods are used at household level to assess the amount of food consumed/dietary patterns of members of a family in a specified period.

Ecological factors

Occurrence of malnutrition is usually the final results due to the interaction of different ecological factors such as socio-economic factors, quality, accessibility, availability of health care services, and diseases.[1,7] It is extremely important to make an "ecological diagnosis" to identify, which factors will affect the nutrition status of the community.[1,7] However, it is often difficult to quantify the influence of ecological factors, which precipitates unfavorable nutritional outcomes.

Nutritional assessment is being used in different settings, for instance, for evaluating the level of cognitive impairment in the elderly; finding potential nutritional risk of the patients during the transplantation process in leukemia patients; assessing the cardiovascular risk of people suffering from

heart condition; and identifying the prognosis of tuberculosis patients.[8,12-14]

CONCLUSION

Assessment of the nutritional status aids in assessing the prevalence of nutritional disorders, planning corrective measures, and simultaneously evaluating the effectiveness of the implemented strategies.[1]

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